

The National Map — Building Nebraska Partnerships and Framework Data Acquisition/Development

USGS Partnership Fund Application — Nebraska Department of Natural Resources

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Brief Narrative:

The proposed project will build upon a recently established partnership between the Nebraska Department of Natural Resources (NDNR) and the US Geological Survey (USGS) that provides a framework for cooperative activities in support of the National Map. NDNR has undertaken the lead Nebraska partnership role in support of the National Map consistent with recommendations of the Nebraska GIS Steering Committee (NGISSC), the state's intergovernmental GIS coordinating body. This proposed project will acquire/develop additional Nebraska-related, geospatial data, which can be viewed and downloaded through the National Map network, as well as providing for hardware and software required to support this data service. Additional geospatial datasets will include the 2003 statewide, 1-meter, full-color NAIP imagery developed by the USDA Farm Service Agency (FSA) and a composite statewide street centerline/address database. The latter database will be developed by combining the best available street centerline and related address data from multiple sources. Both the aerial imagery and the street centerline/address database are framework datasets that have been identified as priorities within the Nebraska I-Team Strategic Plan, compiled under the auspice of the Nebraska GIS Steering Committee [<http://www.calmit.unl.edu/gis/AnnLRpt2003.pdf>]. This Plan called for the development of an enterprise geospatial data center at NDNR in a partnership with the NGISSC, highlighted the correlation between Nebraska's enterprise data center and The National Map, and encouraged efforts to develop those synergies.

The two lead agencies participating in this proposed project are the NDNR and the Nebraska Department of Roads (NDOR). The NDNR has a long history of Nebraska leadership in GIS and several successful partnerships with USGS and is the designated Nebraska lead agency for the National Map collaboration. The NDOR has been using GIS technology for planning and management of Nebraska's transportation system for over ten years. NDOR will be the lead agency for the development and maintenance of the statewide street centerline/address database. Both agencies are active members of NGISSC. A total of seven (7) agencies are also partners in this proposed project in that they have made commitments to provide a total of \$42,000 in direct financial support to the project to enable the overall project to proceed.

Capability Statement:

The NDNR is statutorily obligated to maintain and administer a data bank of soil and water resources, and make said data available to all interested agencies and persons. It has long recognized the importance and benefits of GIS technology and has been on the cutting edge of GIS development strategy in the State of Nebraska. In the past, NDNR has developed several Interactive Map Server applications for dynamic display of spatial databases that allow users to display, pan, zoom, identify and locate user-defined maps over the Internet. Additionally, a GIS Processing Site has been created that allows users to fill in custom data requests and retrieve information in user-specified formats over the Internet. The NDNR has worked well and continues to work well with partners to ensure that Nebraska has access to current, accurate, and nationally consistent digital data. In collaboration with numerous other local, state and federal agencies (including USGS), NDNR has developed in-house several national framework and state priority datasets used throughout Nebraska and nationwide. Examples of these datasets are the first set of Digital Elevations, Digital Orthophotos, SSURGO Soils, and Registered Wells. NDNR is currently developing, in partnership with USGS and two other state agencies, the National Hydrography Dataset for Nebraska.

In response to recommendations from the NGISSC, the NDNR has recently initiated the development of an enterprise geospatial data center for Nebraska. This data center will include an enterprise-wide geospatial data clearinghouse that will build on an agency-specific FGDC-compliant metadata clearinghouse, which NDNR has maintained for several years. As a result of its geospatial data development and online data distribution activities, the NDNR has within its staff a considerable amount of experience in the areas of network administration, software customization, and online data service.

The NDOR is the partner agency in this project that will be primarily responsible for developing, maintaining and serving the street centerline/address database. As the state's transportation agency, NDOR has over a decade of experience in using GIS technology for transportation planning and maintenance. During this time NDOR has maintained a statewide geospatial network of approximately 30,000 miles of state highways and major local roads. NDOR is now nearing completion of an effort to bring into their system the vectors representing all the additional 65,000 miles of local streets and roads in the state. While NDOR's GIS work is primarily based on Intergraph software, the agency also has ESRI-based products and has experience moving data between the systems. Through its on-going work with local highway superintendents, NDOR has a network of contacts that will be useful in securing on-going updates to local transportation/address datasets.

Another partner is the NGISSC, the statutory-based intergovernmental GIS coordinating entity created by the Nebraska Legislature in 1991. As part of this project, the NGISSC will work with the project partners to facilitate the necessary intergovernmental coordination and the development of Memorandums of Understanding (MOUs) to help define the respective on-going responsibilities and expectations among the parties.

Objectives:

This proposed project will include the following objectives:

- Acquire and serve to National Map the 2003 Nebraska FSA NAIP imagery;
- Purchase hardware/software necessary to store and serve the added data to The National Map;
- Develop and serve to The National Map an enhanced, upgradeable statewide street centerline/address database; and
- Develop interagency MOUs outlining responsibilities for the on-going maintenance and online service of the data to The National Map

Acquire and Serve to National Map the 2003 Nebraska FSA-USDA NAIP Imagery

The project will acquire statewide copies of the non-compressed, original USDA Farm Service Agency (FSA) 2003 NAIP imagery for online distribution and unrestricted use. This orthoimagery is of 1-meter resolution, full-color, and UTM projection. The FSA Aerial Photo Field Office has indicated that it would cost approximately \$44,000 to produce copies of the 5800 Nebraska quarter quads (\$7.50/quarter quad). The project will also provide funding, which will enable NDNR to expand its technology capacity such that these very large, full color imagery data files can be stored and served to The National Map.

It is the stated intention of FSA to update NAIP orthoimagery, at 1-meter resolution, on at least a five-year cycle. The NGISSC has recently authorized an Advisory Committee to explore the possibilities of a State of Nebraska partnership with FSA to provide, on a five-year cycle, copies of updated FSA orthoimagery.

Purchase Hardware/Software to Store and Serve Data to National Map

As part of the proposed project NDNR will procure a server and data storage to enable the agency to store and serve the 2003 FSA aerials. The server will have sufficient processing capability to effectively manage the FSA imagery database and serve it to The National Map using ARCIMS. Acquiring a separate data storage device of sufficient capacity for a full backup copy of the database is also part of the project

Development of an Enhanced, Upgradeable Statewide Street Centerline/Address Database

The NDOR will take the lead in developing and laying the foundation for on-going maintenance of a statewide street centerline/address database. As part of this project, NDOR will also work with NDNR to develop an automated process by which the most current version of this street centerline/address database will be served from their Intergraph-based system, through NDNR servers, to The National Map. If technical complications prevent that from occurring during the course of this project, arrangements will be made to provide periodic, static updates of this database to the NDNR servers for The National Map.

Street Centerline/Address Database Compilation. NDOR will develop an enhanced composite statewide street centerline/address database by combining the following datasets:

1. Street centerline/address data produced by 17 local governments;
2. Census TIGER address data for other Nebraska areas; and
3. The 1:24,000 highways and local roads and streets centerline data developed by NDOR.

The integration of the 17 counties of locally produced street address/centerline data will be based on previous work completed by the Center for Advanced Land Management Information Technology -- University of Nebraska. The address ranges and other desired attributes of the local government data and the Census TIGER data will be conflated to the NDOR street centerline data.

Standardized Transportation Element Identifier Schema. The project will include the development and piloting in at least two counties (one urban, one rural) of a standardized transportation elements (i.e. intersections, road segments, etc.) identifier schema that could be used to facilitate on-going updates of the statewide database by locally produced or upgraded data.

Serve Street Centerline/Address Data to The National Map. The project will also involve the development of an agreement and implementing the technical arrangements to serve this NDOR street centerline/address data, maintained on an Intergraph-based system, to The National Map network.

Develop Interagency MOUs outlining responsibilities for the on-going maintenance and online service of the two datasets and the governing structure of the Nebraska Geospatial Data Center.

During the course of this project an interagency MOU will be developed to outline the respective responsibilities of NDOR, NDNR, and USGS for the maintenance and online map service of the statewide street address database. The MOU between NDNR and USGS will be revised, as necessary, to provide for the online map service of the FSA NAIP imagery to The National Map. An Advisory Committee authorized by the NGISSC will explore and develop proposals for possible partnerships between the State of Nebraska and the FSA for future revisions of the NAIP imagery. The NGISSC and the NDNR will also develop a MOU outlining the respective responsibilities of the two parties for the continued operation of the enterprise Nebraska Geospatial Data Center and its support for the National Map. All of these interagency agreements will help provide the foundation for sustaining Nebraska service and participation in The National Map.

Dependencies:

The NDNR will be the lead state partner in this interagency National Map initiative. NDNR will take the lead in acquiring copies of the 2003 FSA NAIP imagery. NDNR will acquire the necessary hardware and software to store and serve this imagery from its system to the National Map. NDNR will also work with NDOR to develop a reliable mechanism for serving the statewide street address data, maintained by NDOR, to the National Map.

The NDOR will be the state agency that takes the lead in developing and maintaining the statewide street centerline/address database and serving the data to NDNR for the National Map.

The Nebraska GIS Steering Committee will be an active partner with NDNR and NDOR and USGS to help facilitate interagency coordination and the development of necessary MOUs to lay the foundation for sustained operation and development of Nebraska's interagency support of The National Map

If this project is funded via the USGS Partnership Fund, seven state agencies have indicated they will support the overall project by providing a total of \$42,000 in direct contributions toward achieving the overall project goals.

Funding:

Project Costs

Acquire statewide copies of non-compressed FSA NAIP imagery	\$44,000
Hardware and software to store and serve FSA imagery	8,000
Development of statewide street centerline/address database	<u>50,000</u>
TOTAL PROJECT COSTS	\$102,000

Project Funding

USGS Partnership Fund	\$60,000
Nebr. Emergency Management Agency	\$10,000
Nebr. Dept. of Agriculture	10,000
Center for Advanced Land Mgmt Info Tech -UNL	4,000
Conservation and Survey Division-UNL	5,000
Nebr. Dept. of Natural Resources	4,000
Nebr. Health and Human Services System	5,000
Nebraska Public Power District	<u>4,000</u>
Total Partner Agencies' Contribution	\$42,000
Partner Agencies' Financial Contributions to Project	<u>\$42,000</u>
TOTAL PROJECT FUNDING	\$102,000

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